

## IN THE CLAIMS

1. (Currently amended) A device for carrying out of investigations on living cells, cell cultures and ~~the like, especially for~~ [[the]] detection of metabolic activity of the cells, which are located in a liquid medium, the device comprising includes at least a receptor for liquid medium along with the cell culture, and wherein one or more measuring apparatuses and/or sensors for measurement of the cell culture are provided and wherein a movable ~~separation~~ separating element is provided, which confiningly borders a reaction space, ~~characterized in that, the separation~~ separating element (7, 7a) is placed in a measurement position, closely above [[a]] the cell culture on [[the]] a bottom of the receptacle to separate a reaction space (8, 8a) from a reservoir space wherein a volume of the reservoir space is an order of magnitude greater than a volume of the reaction space (8, 8a), and the ~~separation~~ separating element (7, 7a) is movable through one of an essentially vertical up and down motion, from a bottom proximal location, which covers the cell culture and serves as the measurement position, and a bottom distal position, in at least which position, the reservoir (14, 14a) is in fluid communication with the reaction space (8, 8a), or a forward and back, lateral motion between the measurement position and a position in which the reaction space (8, 8a) is in fluid communication with the reservoir (14, 14a).

2. (Currently amended) A device in accordance with Claim 1, ~~characterized in that~~ wherein the movable separating element comprises at least one separating element for one or more cell culture(s) (2) located on the bottom of the receptacle that can be positioned, ~~and in some cases in that position can be brought~~ into such close proximity to said cell culture, as to respectively laterally displace a partial volume of the liquid culture medium (4) which covers the cell culture.

3. (Currently amended) A device in accordance with Claim 1, ~~characterized in that~~ wherein the one or more measuring apparatuses and/or sensors comprises at least one sensor, or a multiplicity of sensors (6), that is [[/are]] placed on, or in, the

bottom of the receptacle (3a) and ~~in that~~ culture areas separated from one another, are formed ~~especially~~ by means of the application of structured, cell repellent coatings or created by means of a three dimensional contouring of the [[said]] bottom with recesses or elevations defining about the separated areas therebetween, and ~~in that~~ the culture medium (4) in the culture areas ~~advantageously~~ is respectively present as drops (25).

4. (Currently amended) A device in accordance with Claim 1, ~~characterized in that~~ wherein the bottom of the receptacle is formed by at least one part of at least one [[of the]] wafer [[s]] upon which ~~possess~~ the at least one sensor [[(s)]] (6) is provided.

5. (Currently amended) A device in accordance with Claim 1, ~~characterized in that~~ wherein an open top container, is provided as a receptacle (3), into which [[a]] the separating element (7) extends, which divides the space of the entire receptacle (3) into two space portions, one positioned above the other, and ~~in that the~~ a bottom side space portion forms a small volume reaction space (8) in comparison to [[the]] an entire volume of the receptacle (3) and the other space portion forms a reservoir (14) and ~~in that~~ at least one flow channel (9) is provided, which first, communicates with the reaction space (8) and second, communicates with the reservoir space (14) and ~~in that~~ within the separating element (7) one or more through-flow channels (15) are provided, which open into the small volume reaction space (8) of the receptacle (3) and/or in the reservoir space (14) of the receptacle (3).

6. (Currently amended) A device in accordance with Claim 1, ~~characterized in that~~ wherein the one or more measuring apparatuses and/or sensors ~~one or more sensor s (6) and/or measurement apparatuses~~ are placed in the area of the reaction space (8, 8a).

7. (Currently amended) A device in accordance with Claim 5, ~~characterized in that~~ wherein the separating element (7) within the receptacle (3) is movable, back

and forth, between a position proximal to the bottom and a position remote from the bottom and in the position proximal to the bottom borders the reaction space (8).

8. (Currently amended) A device in accordance with Claim 1, ~~characterized in that the~~ wherein a side of the separating element (7) proximal to the bottom, possesses a cover, that is, a bordering surface, for [[the]] measurement of [[the]] substances consumed or produced by the cells, ~~especially on~~ on a surface corresponding to [[the]] a sensor surface of the one or more measuring apparatuses and/or sensors.

9. (Currently amended) A device in accordance with Claim 5, ~~characterized in that~~ the separating element (7) can be inserted from above into the receptacle (3).

10. (Currently amended) A device in accordance with Claim 1, ~~characterized in that the~~ wherein a distance of the separating element (7) from the cell culture (2) and therewith the bottom proximal position of the said separating element (7) is adjustable.

11. (Currently amended) A device in accordance with Claim 5, ~~characterized in that~~ the separating element (7) is advantageously constructed with ~~in the shape of a hand stamp~~ shape and has a head (10) with approximately ~~the same~~ an equal cross-section [[as]] to that of the receptacle (3), and which separating element (7) divides the [[said]] receptacle into a reaction space (8) and a reservoir (14) and ~~in that~~ on the separating element (7) a shaft (11) is connected which extends to [[the]] outside, [[the]] an outside cross-section of [[which]] the shaft (11) is smaller ~~that the~~ than an open inside cross-section of the receptacle (3) and ~~in that the~~ an intervening space between the shaft and [[the]] an inner wall of the receptacle (3) forms the reservoir (14).

12. (Currently amended) A device in accordance with Claim 5, ~~characterized in that~~ wherein within the separating element (7) one or more flow channels are

provided which first, open in the reaction space (8) and second open in the reservoir space (14).

13. (Currently amended) A device in accordance with Claim 5, ~~characterized in that~~ wherein the flow channel (9) is formed by an annular gap provided between the separating element (7) and ~~[[the]]~~ an inner wall of the receptacle (3) or ~~is designed as comprises~~ a rim profiling, and ~~the in that this flow channel, or flow channels remain(s) remains~~ available, in the case of a separating element (7) which can be adjusted as to height, at least within ~~[[the]]~~ a lift interval between a position proximal to the bottom and a position remote therefrom.

14. (Currently amended) A device in accordance with Claim 1, ~~characterized in that the~~ wherein an underside of the separating element (7) possesses a contouring for ~~[[the]]~~ guidance of gas bubbles to ~~[[the]]~~ outside, ~~; this being preferably a convex bulging.~~

15. (Currently amended) A device in accordance with Claim 5, ~~characterized in that~~ wherein a thrust limitation for the separating element (7) is provided and ~~in that for this purpose,~~ in the bottom proximal position an effective restraint is placed on the separating element (7), ~~preferably this being~~ by a detent abutted by ~~[[the]]~~ an upper rim (12) of the receptacle (3).

16. (Currently amended) A device in accordance with Claim 16, ~~characterized in that~~ wherein the detent placed on the upper receptacle rim (12) by the separating element (7) ~~is made by means of comprises~~ a cover (13) which overlaps the rim (12) of the receptacle (3) or alternately ~~by a cover (13) with~~ includes a conical section which engages in a counter conical section of the receptacle opening.

17. (Currently amended) A device in accordance with Claim 1, ~~characterized in that~~ wherein the separating element (7) possesses on ~~[[its]]~~ an upper side thereof, an

~~especially standard opening, preferably of a receiving conical shape for [[the]] coupling with a pipette, a pipette tip, or a dispenser channel.~~

18. (Currently amended) A device in accordance with Claim 5, ~~characterized in that~~ wherein ~~[[the]]~~ a receiving volume of the reservoir (14, 14a) is a multiply greater than the ~~receiving~~ volume of the reaction space (8, 8a) and ~~that these~~ the two volumes are in relation to one another by ~~[[the]]~~ ratios of respectively, 10 : 1 to approximately 100 : 1.

19. (Currently amended) A device in accordance with Claim 1, ~~characterized in that~~ wherein at least one chip with at least one microsensor is located at least on the bottom of the receptacle (3) or a receiver, ~~is placed at least one chip with one or preferably several microsensors.~~

20. (Currently amended) A device in accordance with Claim 1, ~~characterized in that~~ wherein sensors or electrodes are provided on the separating element (7), proximal to the reaction space (8) and/or to the reservoir (14), ~~sensors (6) and/or electrodes are provided.~~

21. (Currently amended) A device in accordance with Claim 5, ~~characterized in that~~ wherein at a distance from the receptacle bottom and between this and the separating element (7) in ~~[[its]]~~ a bottom proximal position, a microporous membrane (23) or ~~a similar~~ filter or protective covering for the cell culture is provided.

22. (Currently amended) A device in accordance with Claim 1, ~~characterized in that~~ wherein the separating element (7) is comprised of a smooth, cell rejecting, inert and easily sterilized material, ~~this being preferably polytetrafluor ethylene.~~

23. (Currently amended) A device in accordance with Claim 1, ~~characterized in that the~~ a resting surface for the cell culture (2) is optically transparent and ~~in that~~

the resting surface is related to an optical measuring apparatus, which, ~~preferably~~, is situated on the underside.

24. (Currently amended) A device in accordance with Claim 1, ~~characterized in that wherein the receptacle comprises~~ a plurality of receptacles (3) ~~are provided, preferably as a part of a pipetting automat (19) and in that these~~ the receptacles (3) ~~are especially made by~~ comprise commercially available multiwell plates (20) and ~~in that on the~~ on lower ends of [[the]] dispenser channels of the pipetting automat, respectively, the separating element (7) is provided.

25. (Currently amended) A device in accordance with Claim 1, ~~characterized in that wherein~~ the separating element (7) on its end distal to the bottom, includes possesses a fitting for connecting to, or plugging into, a dispenser channel (22)–, ~~preferably of~~ a pipetting automat.